Vector Interface Box

Reference Manual

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(1) this device may not cause harmful interference, and

(2) this device must accept any interference received, including interference that may cause undesired operation.

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In order to obtain warranty service, the end purchaser must bring the Product to a CSI Wireless approved dealer, along with the end purchaser's proof of purchase. For any questions regarding warranty service or to obtain information regarding the location of any of CSI Wireless's dealers, contact CSI Wireless at the following address:

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Preface

Welcome to the Vector Interface Manual and congratulations on choosing to purchase this high quality accessory to the Vector line of products.

The Vector Interface Box facilitates wiring and connectivity between Vector receivers and auxiliary equipment.

We have written this document to assist a customer in becoming familiar with the Vector Interface Box operation and setup.

Customer Service

If you encounter problems during the installation or operation of this product, or cannot find the information you need, please contact your dealer, or CSI Wireless Customer Service. The contact numbers and e-mail address for CSI Wireless Customer Service are:

Telephone number:	+1-403-259-3311
Fax number:	+1-403-259-8866
E-mail address:	techsupport@csi-wireless.com

Technical Support is available from 8:00 AM to 5:00 PM Mountain Time, Monday to Friday.

To expedite the support process, please have the product model and serial number available when contacting CSI Wireless Customer Service.

In the event that your equipment requires service, we recommend that you contact your dealer directly. However, if this is not possible, you must contact CSI Wireless Customer Service to obtain a Return Merchandise Authorization (RMA) number before returning any product to CSI Wireless. If you are returning a product for repair, you must also provide a fault description before CSI Wireless will issue an RMA number.

When providing the RMA number, CSI Wireless will provide you with shipping instructions to assist you in returning the equipment.

World Wide Web Site

CSI Wireless maintains a World Wide Web home page at the following address:

www.csi-wireless.com

A corporate profile, product information, application news, GPS and DGPS literature, beacon coverage information, and software are available at this site.

Document Conventions

Bold is used to emphasize certain points.

Notes, Cautions, and Warnings

Notes, Cautions, and Warnings stress important information regarding the installation, configuration, and operation of the Vector Interface Box receiver.

Note - Notes outline important information of a general nature.

Cautions - Cautions inform of possible sources of difficulty or situations that may cause damage to the product.

Warning - Warnings inform of situations that may cause harm to you.

1. Operation

The purpose of this chapter is to introduce you to the operation of your Vector Interface Box.

1.1 Receiving Your Shipment

If you find that your Vector Interface Box is damaged due to shipment, please contact the freight carrier immediately for assistance.

When you unpack your Vector Interface Box, please ensure that it is complete by comparing the parts received against the packing slip. Unless your system has been equipped differently than a standard Vector Interface Box system, you should find the following parts in your system:

- One Vector Interface Box (P/N 805-0009-01A)
- One Vector Interface Box Reference Manual (P/N 875-0127-000)

Note - If, for some reason, you find a discrepancy between your packing slip and the contents of your shipment, please contact the sales person with which you placed your order immediately.

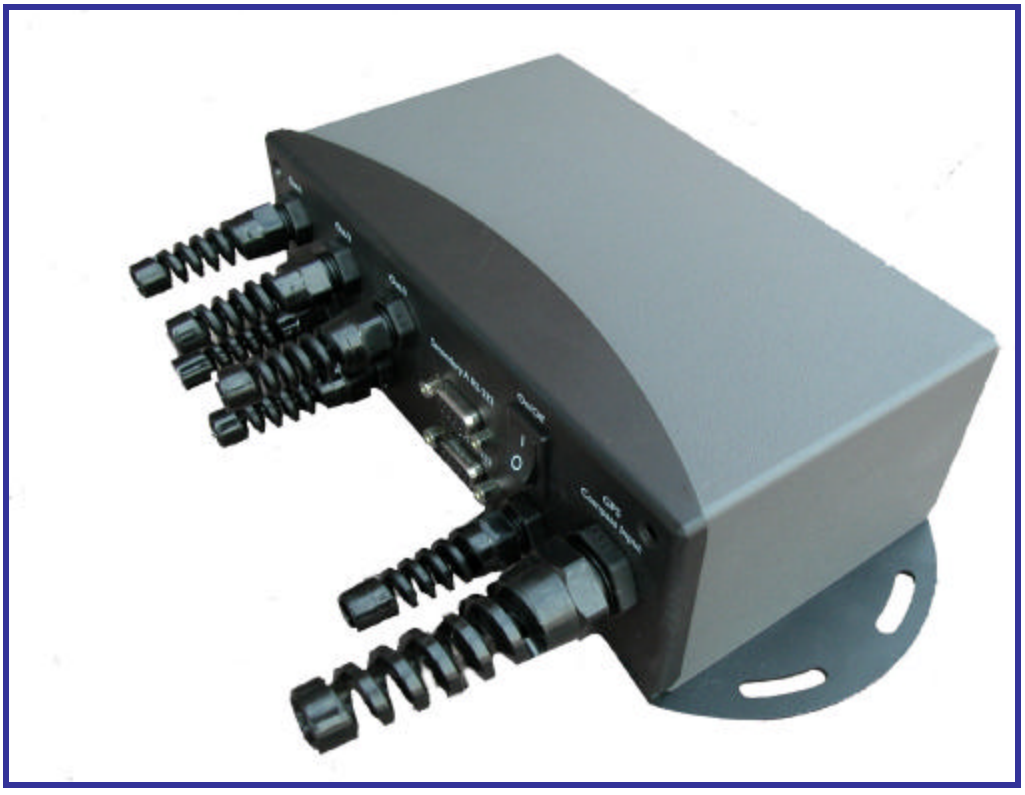


Figure 1-1 Vector Interface Box

1.2 Cable Connections

The connections required by the Vector Interface Box are very straightforward. The Vector Interface Box needs to be connected to a power supply (8 to 40 VDC) and to the Vector Power/Data cable and can communicate via direct cabling or through an RS-232 serial cable. To access the internal terminal strips, the two faceplate screws must first be removed, and then the top plate may be detached as pictured below in Figure 1-2.

Figure 1-2 Vector Interface Box Internal Access

The cable from your Vector unit is connected to the Vector Interface Box by first removing the bend relief coil from the 'GPS Compass Input' port. After the cable has been fed through the coil and port, the bend relief is clamped onto the cable, and ensures it is securely attached.

The cable from your Vector product will be attached to the terminal strips on the right side of the circuit board. To attach the cable's wires to the terminal strips, the screw of the appropriate connection must first be loosened, the wire inserted, and the screw then tightened again. The Vector cabling and terminal strip connections are detailed in Table 1-1.

Table 1-1 Terminal Strip Connections

Terminal Strip Label	Wire Pairs	Signal
1	Orange	1 pulse per second + (1 PPS +)
2	Black	1 pulse per second - (1 PPS -)
3	Yellow	Primary GPS Port B transmit RS-422+
4	Black	Primary GPS Port B transmit RS-422-
5	Brown	Secondary GPS Port A transmit RS-232
6	Black	Secondary GPS Port A receive RS-232
7	Green	Primary GPS Port A transmit RS-422+
8	Black	Primary GPS Port A transmit RS-422-
9	Blue	Primary GPS Port A transmit RS-232
10	Black	Primary GPS Port A receive RS-232
11	White	Primary GPS Port B transmit RS-232
12	Black	Signal Ground
Red	Red	Power input (8 to 40 VDC)
Black	Black	Power ground
Bare	Bare Wire	Drain for RF shielding

There are 5 output ports from the Vector Interface Box faceplate. These outlets enable the connected Vector product to communicate with and display data to other auxiliary components.

Each terminal strip on the board is connected inline with the each adjacent terminal strip. Therefore, you can access any of the Vector signals from any terminal strip since the sequence of connections is the same for all strips. To establish the required connection with external equipment, simply remove the bend relief coil from an output port, connect wiring to the desired terminal strip outlet, feed the wire through the outlet and coil and reattach the coil to securely fasten.

1.3 Routing and Securing the Cable

When choosing a route for cables connecting to the Vector Interface Box:

- Avoid running cables in areas of excessive heat
- Keep antenna cables away from corrosive chemicals
- Do not run the extension cable through door or window jams
- Keep the cable away from rotating machinery
- Do not bend excessively or crimp the extension cable
- Be careful not to apply tension to the cable
- Remove unwanted slack from the cable at the opposite end to the antenna
- Secure the cable route using plastic tie wraps

Warning – Improperly installed cables near machinery can be dangerous.

1.4 Pin-Outs

There are two serial port DB9 connections on the Vector Interface Box. The one marked 'Primary A RS-232' is used to communicate with the Primary (or Master) antenna's main port, while "Secondary A RS-232' is for use with the Secondary (or Slave) antenna's main port.

The following table details the pin-out of the serial ports of the Vector Interface Box. Below is a figure of the DB9 socket numbering. If you are unable to communicate via the serial ports, this may be due to an incorrect connection from the Vector to the terminal Strip. Please refer to Table 1-1 and ensure all wires from the Vector Power/Data cable are properly connected.

Table 1-2 Serial Port Pin-out, RS-232C Interface Level

Pin	Signal	Description
2	TXD – serial	NMEA 0183, binary, and RTCM output
3	RXD – serial	NMEA 0183, binary, and RTCM input
5	Sig. Ground	Signal return

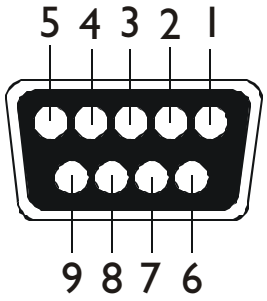


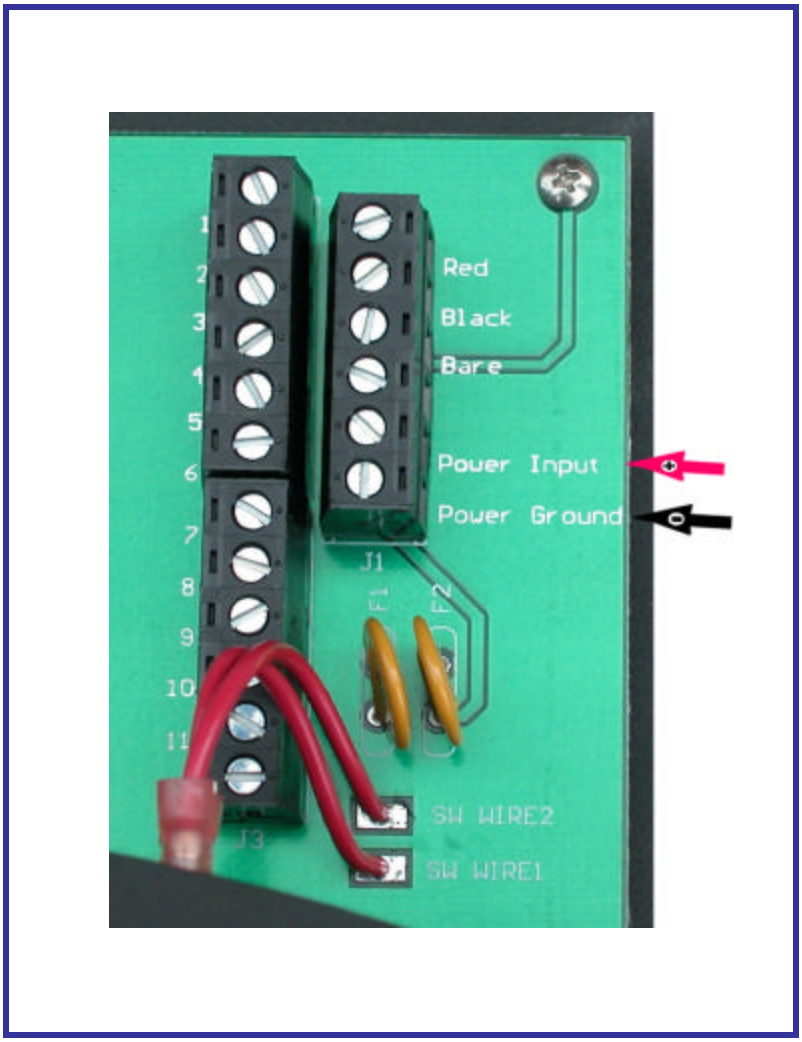
Figure 1-3 DB9 Socket Numbering

1.5 Environmental Requirements

The equipment supplied with the Vector Interface Box system has specific environmental limits that you should ensure are met when storing and using the system. It is intended to be operated in an indoor, sheltered environment and is not designed as waterproof and should therefore not be exposed to outdoor weather conditions.

1.6 Power Requirements

The Vector Interface Box (and the Vector receiver through it) is powered via cabling from a power source that is fed through the enclosure's 'Power Input' port. The positive wire will be connected to the outlet marked 'Power Input', while the negative is connected to that marked 'Power Ground'. Once a power source has been connected, the power to the Vector unit may be controlled through the external On/Off switch.



This system accepts an input voltage between 8 and 40 VDC. Refer to Table 1-3 for the power requirements. For best performance, the supplied power should be continuous and clean. The following table details the power specifications of the Vector Interface Box.

Table 1-3 Power Requirements

Input Voltage	Input Current	Input Power
8 to 40 VDC	< 360 mA @ 12 VDC	< 4.50 W

Appendix A - Specifications

This appendix provides the serial, power, physical, and mechanical specifications of the Vector Interface Box.

Table A-1 Vector Interface Box Specifications

Serial Interface Specifications	
Item	**Specification**
Serial port interface level	RS-232C
Data Port	DB9 Socket
Data Port available baud rates	Same as that of Vector products: 4800, 9600, 19200, 38400, 57600 and 115200 Baud
Serial Port	Two full duplex

Power Specifications	
Item	**Specification**
Input voltage	8 to 40 VDC
Power consumption	4.5 W
Current Consumption	<360 mA @ 12 VDC

Mechanical Characteristics	
Item	**Specification**
Enclosure	
Length	7.625” (9.750” including bracket)
Width	4.400”
Height	2.750”
Weight	1.270 kg
Data Connector	2 DB9 Female